

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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TITLE:

**METHOD FOR SELECTIVE STABILIZATION  
AND/OR ALTERATION OF ELASTIC MODULUS  
IN TEXTILE FABRICS AND TEXTILE FABRICS  
PRODUCED THEREBY**

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**METHOD FOR SELECTIVE STABILIZATION AND/OR ALTERATION  
OF ELASTIC MODULUS IN TEXTILE FABRICS AND  
TEXTILE FABRICS PRODUCED THEREBY**

**BACKGROUND OF THE INVENTION**

[0001] The present invention relates generally to textile fabrics and, more specifically, to elastic textile fabrics.

[0002] Elastic textile fabrics are commonly used in the fabrication of many types of wearing apparel, such as athletic and sports apparel and especially intimate apparel, e.g., bras, panties and shapewear. In the fabrication of such garments, it is known that differing portions or areas of such garments may have differing requirements for elastic power. This requirement may be addressed by the fabrication of a garment from differing pieces of fabric cut to conform to a given section of the garment and then sewn together. In doing so, if necessary, differing fabrics and/or multiple layers of fabrics may be utilized in certain areas to selectively create differing levels of stretchability and elastic control. Alternatively, formation of sewn seams with variable stitches per inch may also be employed to selectively vary the stretchability and elastic control in a given region or area of a garment.

[0003] Various methods and compositions for finishing and otherwise treating textile fabrics subsequent to fabric formation are also well known within the textile industry. Finishing and treating techniques often involve the application of a finishing composition to a fabric. Representative examples of textile finishing or treating compositions are disclosed in the following U.S. patents.

Patent No.	Patentee	Issue Date
3,676,206	Kazuo Nishitani et al	July 11, 1972
3,932,125	Wasley et al	January 13, 1976
4,565,715	Long	January 21, 1996
4,794,027	Hering	December 27, 1988
4,828,909	Davis et al	May 9, 1989
5,413,846	Besana	May 9, 1995
5,422,172	Wu	June 6, 1995
3,255,030	M. Storti	June 7, 1966
3,429,729	E.W. McCarthy	February 25, 1969
3,563,841	Sturkey	February 16, 1971
3,637,427	Tsuruta et al	January 25, 1972
3,639,154	Sawa et al	February 1, 1972
4,678,704	Fellows	July 7, 1987
1,823,053	Lawton	September 15, 1931

Patent No.	Patentee	Issue Date
2,175,733	Schwartz et al	October 10, 1939
2,353,525	Teague	July 11, 1944
2,677,872	Teague	May 11, 1954
3,294,580	Gunter et al	December 27, 1966
3,374,289	Karl-Heinz et al	March 19, 1968
2,955,324	Morgan	October 11, 1960

[0004] Some of the finishing compositions disclosed in certain of these patents include an elastomer composition or ingredient.

#### DESCRIPTION OF THE PRESENT INVENTION

[0005] It is an object of the present invention to provide a methodology for treating textile fabrics, particularly elastic fabrics, so as to selectively stabilize, modify or otherwise alter the elastic power or elastic modulus of the fabric in a selected area or areas, in comparison to other untreated or differently treated areas of the fabric.

[0006] Briefly summarized, the present invention contemplates the selective application of an elastomeric finishing composition to selective areas of a textile fabric, including but not necessarily limited to elastic fabrics, and to be absorbed or otherwise diffused into the constituent yarns and/or structure of the fabric, so as to selectively stabilize, modify or otherwise alter the elastic power or elastic modulus of the fabric in the selected areas of application. It is contemplated to be preferable that the elastomeric composition be an aqueous-based elastomer compound or composition, particularly so as to avoid any detrimental effects on the fabric or its constituent yarns. For example, a solvent-based elastomeric compound would be inappropriate to be used for this purpose with many if not most or all fabrics made of or comprising synthetic yarns.

[0007] It is contemplated that many differing elastomeric compositions may be suitable for such uses, depending upon the particular fabric and its constituent filament or yarn composition to which the elastomeric material is to be applied and depending upon the intended end use or uses for the fabric. By way of example but without limitation, an aqueous-based liquid elastomeric latex cement such as that commercially sold under the trademark TEAR MENDER by Val-A Chicago, Inc., of Chicago, Illinois, is believed to be an appropriate composition for use with many warp-knitted polyester or nylon based fabrics such as are commonly used in athletic apparel, other sportswear, and intimate apparel (bras, panties and shapewear). Other elastomeric compositions may potentially

be applied in a vaporous form (e.g., a liquid atomized to be airborne) or in a gaseous form.

[0008] The invention also contemplates a means by which the application of the elastomeric material to discrete fabric areas or regions may be controlled within acceptable tolerances. For example, a mask or stencil in the shape of the area to which the elastomeric material is to be applied may be provided and overlaid on the fabric surface during application. Similarly, a screen printing application process could be utilized in the same fashion. Alternatively, the elastomeric material could be applied by a manipulable or otherwise controllable ejection nozzle operated to traverse over the region of the fabric to receive the elastomeric material. Of course, other possible means and methods of application of the elastomeric material will also occur to those persons skilled in the art.

[0009] It will therefore be readily understood by those persons skilled in the art that the present invention is susceptible of broad utility and application. Many embodiments and adaptations of the present invention other than those herein described, as well as many variations, modifications and equivalent arrangements, will be apparent from or reasonably suggested by the present invention and the foregoing description thereof, without departing from the substance or scope of the present invention. Accordingly, while the present invention has been described herein in detail in relation to its preferred embodiment, it is to be understood that this disclosure is only illustrative and exemplary of the present invention and is made merely for purposes of providing a full and enabling disclosure of the invention. The foregoing disclosure is not intended or to be construed to limit the present invention or otherwise to exclude any such other embodiments, adaptations, variations, modifications and equivalent arrangements, the present invention being limited only by the claims appended hereto and the equivalents thereof.